IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	David E. MCDYSAN et al.	Conf. No.:	7593
Application No.:	09/723,501	Examiner:	Gold, A.
Filed:	November 28, 2000	Group Art Unit:	2157
Customer No.:	25537		
Attorney Docket No.:	RIC00043		
Client Docket No.:	09710-1236		

For: EXTERNAL PROCESSOR FOR A DISTRIBUTED NETWORK ACCESS SYSTEM

Assistant Commissioner for Patents
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 1.131

Dear Sir:

I, David E. McDysan, declare as follows:

1. I am employed by MCI, Inc., assignee in interest for the subject matter of the above-referenced patent application, U.S. Application Serial Number 09/723,501, filed on November 28, 2000. In that capacity, I have personal knowledge of the facts and circumstances stated herein, except those statements which are made upon information and belief as set forth below.

2. I am a joint inventor of the above-referenced patent application.

3. An Office Action mailed June 17, 2005 for the present application rejected claims 2-6, 9, 20-24, 27, 37, and 38 under 35 U.S.C. § 102(e) as anticipated by *Miles et al.* (U.S. 6,665,495), claims 7, 8, 10, 11, 25, 26, 28 and 29 as obvious under 35 U.S.C. § 103(a) based on *Miles et al.* in view of *Gai et al.* (U.S. 6,167,445), claims 12, 13, 30 and 31 as obvious under 35 U.S.C. § 103(a) based on *Miles et al.* in view of *Bullock et al.*(U.S. 6,631,414), and claims 14-18 and 32-36 as obvious under 35 U.S.C. § 103(a) based on *Miles et al.* in view of *Bowman-Amuah* (U.S. 6,442,547).

4. My co-inventors and I conceived our invention in this country long prior to October 27, 2000 (hereinafter the effective date), the effective filing date of U.S. Patent No. 6,665,495 entitled "Non-Blocking, Scalable Optical Router Architecture and Method for Routing Optical Traffic" to Miles et al.

5. Long prior to the effective date, my co-inventors and I prepared a description of our invention, a copy of which is attached hereto (Exhibit A). Although the dates of inventor signatures, headers, footers, and additional descriptive material has been redacted, I attest that the date was long prior to the effective date of October 27, 2000.

6. Prior to the effective date of October 27, 2000, and through November 28, 2000, I collaborated with my co-inventors and Attorney Brian Russell at least by telephone and email in his preparation of drafts of the above-referenced patent application, to review the drafts and suggest revisions, as evidenced at least by Exhibits B - L, in which page headers and footers, internal numbers, telephone numbers, email addresses, names of people copied on correspondence, and dates and times have been redacted.

8. The above-referenced application was subsequently filed on November 28, 2000, as evidenced by Exhibit M.

9. Due diligence was exercised from prior to October 27, 2000 to the filing date of November 28, 2000 (Exhibits B - M).

10. I do not know and do not believe that our invention has been in public prior to our application, and I have never abandoned the invention.

11. All statements made herein are true of my own knowledge and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the patent.

Respectfully submitted,

September 19, 2005
Date

David E. McDysan

[redacted]

[redacted]

Describe the invention using the following format. Use as many pages as necessary. **Mark each additional page "MCI WorldCom Confidential."**

1. Discuss the problems which the item is designed to solve. Refer to any prior devices of a similar nature with which you may be familiar.

   A. Today's routers implement the routing, forwarding, policy, policing, marking, and admission control functions in a monolithic, proprietary manner. A few routers have limited implementation of external policy control. The services that a provider can offer are limited by the control software implemented by a particular router/switch vendor. If a service provider has routers from multiple vendors in a network, the proprietary services will not inter-operate. Consequently, the service provider is not able to purchase router/switches from one vendor and purchase policy-based service control from another vendor. Furthermore, a service provider cannot offer its network as a platform for a wholesale provider to offer value-added services utilizing the existing base network capabilities.

   B. The implementation of the multiple functions listed above in a monolithic router presents a significant scalability challenge for vendors in response to the phenomenal growth of Internet traffic. The current design approach by the industry separates the problem into core and access routers. Access routers perform the most complex functions and perform operations that simplify the tasks required of core routers. However, the monolithic design of access routers presents a limit for scalability of the Internet. Evidence of this fact is that the access router software image size is increasing.

   C. Another problem brought on by the rapid growth of Internet traffic is the need to dynamically provision, configure, and/or reallocate access capacity to IP-based services. Access capacity is often limited and a major cost component of modern networks. Therefore, it is subject to congestion and has a strong need for admission control and different levels of quality. Also, access products are not capable of handling a wide variety of traffic types while being able to enforce policy controls (provider-initiated or customer-initiated) or dynamic requests for capacity.

   D. Today's routers cannot distinguish between higher layer message types and forward the higher layer messages according to service/policy parameters. Today's routers do not use a combination of protocol type, source IP address (SA), destination IP address (DA), type of service (TOS) or differentiated service code-point (DSCP), source port number (SP) and destination port number (DP) to distinguish different message types. In fact, most routers use only the DA to make the forwarding decision. Some newer routers use only DA plus TOS/DSCP.

   E. Today's access routers have a concept of one controller providing all services for all message types. This results in a single complex router, which is difficult to add new services or modify existing services. This monolithic design limits flexibility and extensibility and increases cost. Evidence of this fact is that the time to market for new features and functions are delayed. For example, in today's network, if a service provider's external policy server sends COPS messages to an access router, the service provider must ask the vendor to develop a COPS interface on the router.

   F. Today's routers have relatively weak security control of their configuration information. For example, a command line interface is invoked by a simple userid password exchange in the clear when initiating over a telnet session.

   G. Desktop computing applications provide customers with the means to utilize many different services while each service requires different (quality of) service requirements. Today's networks do a poor job of identifying which traffic is associated with which service. Therefore, applications vie for whatever network resources can be obtained in a first-come, first-served fashion.

   H. Traffic patterns are shifting from the traditional telecommunications model where the community of interest was primarily local to one where the community of interest is distance independent.

   I. Today's network is not able to measure or monitor the statistics of layer-2 and layer-3 traffic types and take advantage of dynamic network capabilities to add network resources to support customer Service Level Agreements (SLAs).

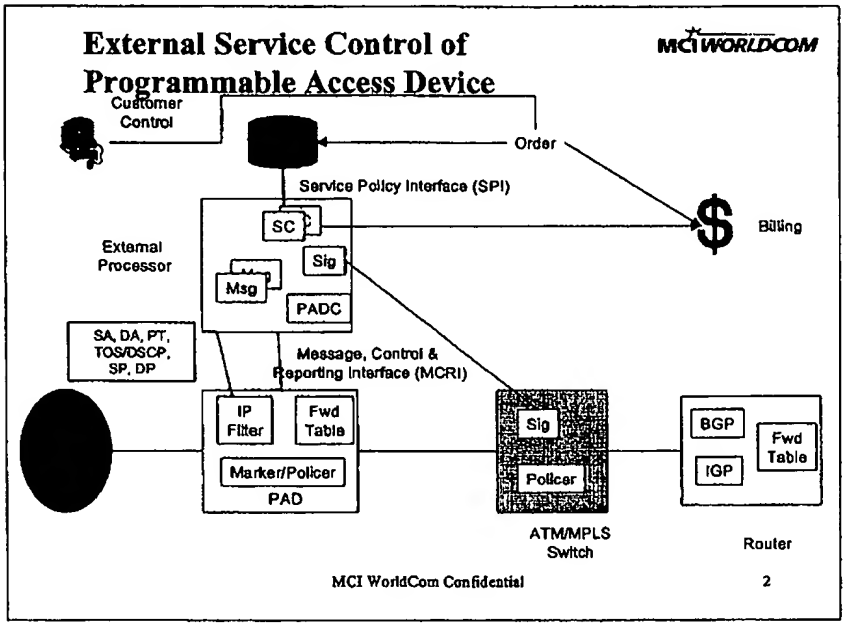
   The invention is similar to FAST with respect to the separation of signaling and switching and interaction with policy servers. This disclosure extends these concepts to IP connectionless protocols as well as higher layer session and application layer protocols.

2. Describe how the invention qualifies as a solution to the problem, and state the advantage of the item over presently known devices, systems or processes.

Inventor Signature	Date	Inventor Signature	Date	Inventor Signature	Date
David E McDysan	[redacted]	H. Lee Thomas	[redacted]	Lei Yao	[redacted]
Print Name David E. McDysan		Print Name H. Lee Thomas		Print Name LEI YAO	

[redacted]

A. The invention decomposes the traditional router into a Programmable Access Network with distributed service control (PANDSC) and hardware/software Service Controllers (SC) executing on external processors as shown in Figure 1. The SCs interface to the PAD using a Message Control and Reporting Interface (MCRI). The PAD uses the MCRI to pass service-specific messages to/from the corresponding service controller software/hardware executing on an external processor. The PAD uses fields in the network, transport and application layer headers to identify a particular traffic flow and determine which messages are passed to a specific service controller. One or more service controllers may remotely control a single PAD; however, only one SC would control a particular traffic flow. Additionally, the PAD can report on events of statistics of received traffic according to parameter ranges and intervals defined by the SC. The combination of the PAD functions of service-specific message forwarding, remote control, and reporting enables the implementation of the service controllers by different vendors than those implementing the PAD.



B. The invention achieves superior scalability when compared with traditional routers since it separates out the functions performed by a router into three platforms. Routing is still done in the router as shown on the right-hand side of Figure 1. However, the functions of filtering, message forwarding, policing, and marking are placed in the PAD. Finally, the message interpretation, signaling, admission control, and policy invocation is implemented in SCs on external processors.

C. The Programmable Access Device and SC enable customer applications to reserve bandwidth, perform admission control, and prioritize traffic streams based upon available capacity and policy controls. These policy controls may be initiated by the provider or the customer organization. The capability for customer applications to interact with service provider network resources provides the customer the ability to dynamically provision services as well as provide applications the required quality of service guarantees. If the PAD is located at the extreme edge of the network, then the external processor can signal for access capacity. This network-based provisioning invoked by policy control replaces time-consuming and error-prone OSS provisioning.

D. The IP filter in the PAD provides the ability to identify higher layer message types (network, transport and application layers) and forward those messages from/to the external processor based on the parameters configured by message processor. The IP filter will have the ability to use a combination of protocol type, SA, DA, TOS or DSCP, SP, DP and other fields to distinguish different message types.

E. Each service controller executing on the external processor supports a specific type of service. (Each service controller may be based on a generic controller with service-specific APIs.) The invention allows implementation of new services by the introduction of new SCs (or modification of existing SCs) without requiring changes to the PAD. Multiple service controllers provides the ability to add new services or modify existing services by the addition or replacement of service controllers rather than requiring all services to be disrupted during upgrades.

Inventor Signature Date	Inventor Signature Date	Inventor Signature Date
[redacted]	[redacted]	[redacted]
Print Name David E McDysan	Print Name H. Lee Thomas	Print Name LEI YAO

EXHIBIT A

[redacted]

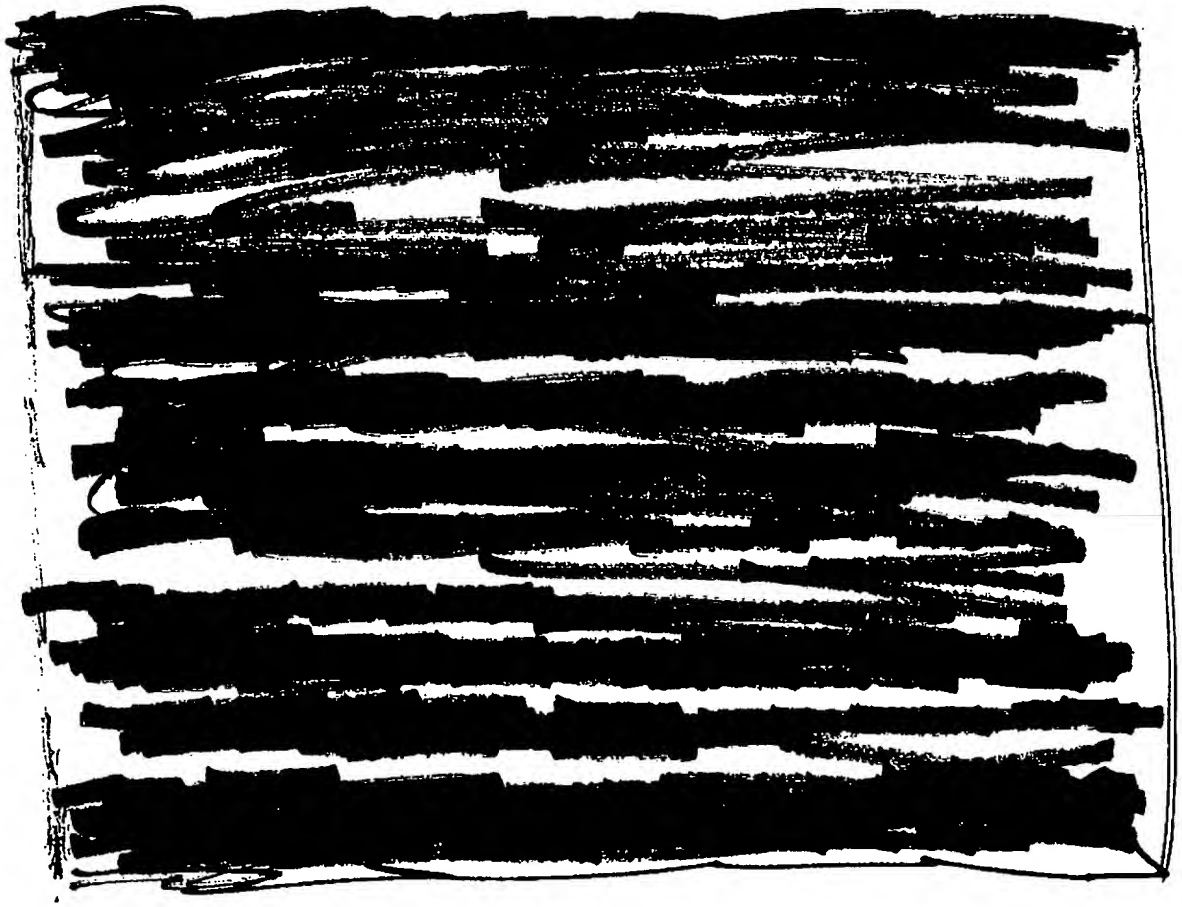
SCs can be installed on multiple external processors. Additional external processors are easily added according to service requirements, which results in the good scalability.

F. The external processors provide added security against theft of services and attacks. The external processors may be maintained in a secure environment while leaving the forwarding functions of the PAD in a less-secure environment. In addition to being physically separate from the PAD, security software and/or hardware on the external processor may be implemented. TCP sessions to configure the PAD from the IP addresses other than its master external processors would be denied by the IP Filter.

G. Since the PAD intercepts network, transport and application level messages, it enables the identification of applications and users, and sets up an appropriate priority or provides the desired bandwidth to the data flows of user applications. For example, RSVP together with Microsoft subnet bandwidth manager (SBM) provides an application with guaranteed bandwidth and priority end-to end across the local and wide area networks.

H. As Internet traffic patterns change to be well-distributed around the globe, the ability to apply service and policy at the access separately from routing on a regional basis provides a more scalable design for forwarding traffic toward the distant destination.

I. The usage monitor in PAD is able to track the statistics of different layer-2 and layer-3 traffic types. When the volume of traffic for a specific type across a threshold, this event is reported to SC. The Signaling Processor within the External Processor works with the SC to ensure that active SLAs are maintained throughout the network. This coupling of the policy accessed by the SC and the dynamic SLA support in the network provides a more flexible solution that is available with today's TDM approach to SLAs.


[redacted]

Inventor Signature	Date	Inventor Signature	Date	Inventor Signature	Date
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Print Name David E. McDysan		Print Name H. Lee Thomas		Print Name LEI YAO	

EXHIBIT A

[redacted]

From: Lei Yao [redacted]
Sent: [redacted]
To: 'Brian F. Russell'
Cc: 'Dave.mcdysan'; 'steven.mccann'; lee.thomas [redacted]; jim.dalton [redacted]
Subject: RE: patent application

ric.zip

Brian,

Attached please find our consolidated comments. We divided the comments into general comments and detailed comments. The general comments are put into a separate document. Detailed comments are made in the draft document with our initials. We also made some changes in the drawings.

Below is the conference bridge info.:
Date: [redacted]
Time: [redacted] (EDT)
Toll Free - [redacted]
Pass Code [redacted]

EXHIBIT B

Thanks again for your excellent work.

Lei

-----Original Message-----
From: Brian F. Russell [redacted]
Sent: [redacted]
To: lei.yao
Cc: Dave.mcdysan; steven.mccann
Subject: RE: patent application

<< File: RIC00033 (44796).doc >> << File: landscapedrawings.doc >> << File: portraitdrawings.doc >> Gentlemen,

Please find attached an initial draft of the first patent application. I would appreciate it if you could forward a copy to Lee for his review, as I don't have his email address.

I will continue working on the claims for the 3 additional applications while I await your comments. As you work through the document, please address the highlighted comments embedded in the text. Also, please consider whether the description is technically accurate and complete (whether it discloses to a person "skilled in the art" how to make and use the invention) and discloses the "best mode", if any, in which the invention may be used.

It would be helpful to me if comments for all the inventors can be compiled into either a single marked up version of the application or a single set of separate comments. Thank you for your assistance in the preparation of this application, and please contact me if I can resolve any issues that arise during the review process.

Best regards,

EXHIBIT C

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731

[redacted]

[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

>>> Lei Yao <[redacted]> [redacted]

EXHIBIT D

Brian,

Thanks for the update. We are looking forward to read the application.

Lei

-----Original Message-----
From: Brian F. Russell [redacted]
Sent: [redacted]
To: lei.yao
Cc: Dave.mcdysan; steven.mccann
Subject: RE: patent application

Lei,
Just to update you on my progress on the applications, I have nearly completed a draft of the first application and expect to send you the draft for review next week. As we discussed, the all of the applications will contain the same basic description, but will differ in focus in the claims, summary and abstract. Hopefully, the commonality in the applications will facilitate your review.

Best regards,

EXHIBIT E

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731
[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

[redacted]

From: Brian F. Russell [redacted]
Sent: [redacted]
To: dave.mcdysan; lei.yao
Cc: lee.thomas; steven.mccann
Subject: RE: patent application

Gentlemen,

Just to update you on the status of the patent applications, I have unfortunately been unable to work on the patent applications since I received the information Dave McDysan provided because of additional duties I have had to assume since Andrew, the firm's managing partner, broke his back last weekend.

Originally, I had anticipated completing all of the applications by [redacted]. I now believe that I can have revised drafts of the applications to you for review by [redacted].

I apologize for the delay.

Best regards,

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731
[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

EXHIBIT F

[redacted]

From: Brian F. Russell [redacted]
Sent: [redacted]
To: dave.mcdysan; lei.yao
Cc: lee.thomas; steven.mccann
Subject: RE: patent application RIC00043

Follow Up Flag: Follow up
Flag Status: Completed

RIC00043.cla.doc

Gentlemen,
Attached please find the claims, abstract and summary for the external processor application.

Best regards,

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731
[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

EXHIBIT G

[redacted]

[redacted]

From: Brian F. Russell [redacted]
Sent: [redacted]
To: dave.mcdysan; lei.yao
Cc: lee.thomas; steven.mccann
Subject: RE: patent application RIC00033

Follow Up Flag: Follow up
Flag Status: Completed


landscapedrawings.doc


Overview.ppt


portraitdrawings.doc


RIC00033 (44796).doc


RIC00042.cla.doc

Gentlemen,

Attached, please find attached the following:

(1) the second draft of the patent application, which includes your most recent comments [Please see my imbedded notes and questions pertaining to the "Overview" description that was added] and a full claim set;
(2) figures for the application (which are unchanged except for the insertion of reference numerals in the "Overview" drawings provided by Dave);
(3) claims, abstract and summary for the second application covering the PAD (Docket No. RIC00042).

I will send the claims, abstract and summary for the other two applications either later today or tomorrow.

Best regards,

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731
[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

EXHIBIT H

[redacted]

From: LEI YAO [redacted]
Sent: [redacted]
To: 'Brian F. Russell'; dave.mcdysan
Cc: lee.thomas; steven.mccann
Subject: RE: patent application RIC00044

EXHIBIT I

Brian,

Thanks for putting together all four applications during the short period.

Steven,

I will coordinate with Dave and Lee to review these applications. After the applications have been agreed on by us, do we need approval from you before we really submit these applications? What is the next step from the legal department?

Thanks.
Lei

-----Original Message-----
From: Brian F. Russell [redacted]
Sent: [redacted]
To: dave.mcdysan; lei.yao
Cc: lee.thomas; steven.mccann
Subject: RE: patent application RIC00044

<< File: RIC00044.cla.doc >> Gentlemen,

Please find attached the claims for the final patent appliication covering the MCRI.

Best regards,

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731
[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

EXHIBIT J

[redacted]

From: LEI YAO [redacted]
Sent: [redacted]
To: 'paul.roberts[redacted]'; 'Steven.McCann[redacted]'
Cc: 'dave.mcdysan[redacted]'; 'brussell[redacted]'; 'lee.thomas[redacted]'
Subject: patent applications

patentcmts.zip

Paul,

Attached please find the final comments we made for the patent applications prepared by Brian Russell. We understand that you will work on this case representing Steven. The applications were well written. We only made several minor changes. If you turn on "track change" options of MS Words, you should be able to see those changes. We believe that the applications are ready to be submitted. Since there is going to have a patent law change on 11/29, which may bring negative impacts on pending patents, we probably would like to submit these patent applications before that date to better serve the company's interests.

Please let us know your thoughts.

Thank you very much.
Lei

EXHIBIT K

[redacted]

[redacted]

From: Brian F. Russell [redacted]
Sent:
To: lei.yao
Cc: dave.mcdysan; lee.thomas; Paul.roberts
Subject: Re: Patent applications

Gentlemen,

Thank you for your assistance in preparing the patent applications. I have reviewed the comments you had and have finished incorporating them into the applications.

To speed up preparation of the legal documents that will accompany the applications, I need updated addresses for each of you (the ones listed in the disclosure seem to be out of date).

Thank you for your help.

Best regards,

Brian F. Russell
Felsman, Bradley, Vaden, Gunter & Dillon, LLP
Suite 350, Lakewood on the Park
7600B N. Capital of Texas Hwy.
Austin, TX 78731
[redacted] (voice)
[redacted] (fax)
[redacted]
www.patentlawyers.com

EXHIBIT L

MAY 1 2001

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/723,501	11/28/2000	2661	1128	RIC00043	21	36	2

CONFIRMATION NO. 7593

UPDATED FILING RECEIPT

OC000000006005761

25537
MR. PAUL ROBERTS
MCI WORLDCOM
1133 19TH STREET NW (9854/003)
WASHINGTON, DC 20036

Date Mailed: 04/25/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Dave McDysan, Herndon, VA;
Howard Lee Thomas, Ballwin, MO;
Lei Yao, Arlington, VA;

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted 03/29/2001

EXHIBIT M

Projected Publication Date: N/A

Non-Publication Request: No

Early Publication Request: No

Title

External processor for a distributed network access system

Preliminary Class

370